THE MIND OF HELEN KELLER.

F. Tilney.

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The Mind of Helen Keller

Brain Specialist Analyzes Her Marvelous Senses of Touch and Smell

by FREDERICK TILNEY, M. D.

LONG after most great names are forgotten, the influence of Helen Keller's genius will live in the dark world of those who do not see or hear. It will live, too, for those who, though gifted with all their senses, would make the most of their endowments.

Blackstone once said that the man born deaf, dumb, and blind was looked upon by the law as an idiot. But Blackstone did not know the glorious mind of Helen Keller! And all the glory of this mind is the fruit and product of the indefatigable efforts of another great woman, Miss Helen's incomparable teacher. By her intelligence, courage, and enthusiasm, Mrs. Macy has made a distinguished personage of a deaf and dumb and blind little girl; and far more than this, she has shown the world how completely good and wise teaching may release the human mind from the bonds of ignorance.

To both of these splendid women I wish to acknowledge my gratitude for many delightful hours spent in their company and for their coöperation in the endeavor to throw light upon the most important subject, the Future of the Human Brain.

In an article on Miss Keller it is necessary first to give a brief outline of her life. She was born on June 27, 1880, in Tuscumbia, a little town of northern Alabama. Her father's ancestors were Swiss, and one of these Swiss ancestors was the first teacher of the deaf in Zurich and wrote a book on the subject of their education. Her mother was an Everett, belonging to the same family of Everetts as Edward Everett Hale. She was born healthy and remained so until in her nineteenth month, when she suffered from what was called "an acute congestion of the stomach and brain," which deprived her of her sight and hearing. She had learned to say a few words, but these were soon entirely forgotten.

As a result of her illness, Helen Keller became deaf and blind and dumb. When she was six years old Dr. Alexander Graham Bell advised her father to write to

Perkins Institute for the Blind, in Boston, and ask for a competent teacher. In March, 1887, Miss Sullivan, now Mrs. Macy, came to Helen in the beginning of her seventh year. Of this momentous event Miss Keller writes:

"Thus I came out of Egypt and stood before Sinai, and a power divine touched my spirit and gave it sight so that I beheld many wonders, and from the sacred mountain I heard a voice which said 'knowledge is love and light and vision.'"

The marvelous results of Miss Keller's education were due to the ingenuity and wisdom of her teacher, under whose tutelage she prepared for and entered Radcliffe College in the fall of 1900. She was graduated with honors. Since that time her writings, her addresses, and her efforts in behalf of those afflicted as she has been are among the notable achievements of modern history.

My problem in considering Miss Keller's sensory equipment was to estimate as accurately as possible the means by which she gained her impression of her total environment. From her nineteenth month she has been blind and deaf. Her sense of smell, however, has been preserved and is of certain value to her in making contacts with the world. Her sense of taste is moderately preserved and, while of much less value than the sense of smell, has not been without its service in her development. It is the sense of touch, however, upon which she principally depends.

CONTRASTED with Helen Keller is Laura Bridgman, who was even more limited as to the avenues of her sensory approach to the nervous system. Laura Bridgman lived to be about sixty years of age. During her infancy she suffered from severe convulsions. In her twenty-fourth month she had scarlet fever. Two older sisters died of the disease. Laura's eyes and ears suppurated, and sight as well as hearing was totally destroyed. Smell and taste were so nearly destroyed that both of these were almost useless to her through the greater part of her life. It is doubtful whether at any time she had any real olfactory sense. Thus Miss Bridgman made her adjustment to life with only one of the five possible contact senses, namely, the sense of touch.

Helen Keller, on the contrary, had the advantage of olfactory sensation and also the sense of taste. The latter sense avenue failed to open up much more of the world to her, but the sense of smell has proved to be of considerable importance in her intellectual development. I realized its importance when I took a drive with her some time ago, from her home in Forest Hills to Garden City, Long Island, a distance of about twenty miles.

THE windows of the motor were open. It was a fresh, crisp day in winter. I asked Miss Helen if she could tell us anything about the country through which she was passing, and her first observation was that we were making our way through open fields. This proved to be the case, for the road ran through a golf course. Later she said we were passing trees. The road at this point made its way through a small grove. She then called attention to the fact that we had just passed a house with an open fire, and looking back I saw a small cottage with smoke pouring out of its chimney. She knew at once when we turned off the main road to enter the Motor Parkway, and in the course of our drive along this road she said we were then passing a number of large buildings. Looking behind me, I saw that we were actually in the vicinity of the several groups of structures constituting the Creedmore State Hospital for the Insane.

In the course of our conversation concerning her olfactory sensitiveness, I asked Miss Keller if she would write out for me how important the sense of smell had been to her life and development. Shortly after this she called attention to the fact that we had just entered Garden City and were passing the plant of Doubleday, Doran & Company, her publishers, which actually was the case. Her realization of this fact, she told me, was due to her smelling the

ink from the presses of the publishing house, with which she was very familiar. In response to my request for a statement concerning her olfactory sense, she wrote on the typewriter the following letter addressed to me, which is transcribed in full, not only as bearing upon the point in question, but as showing the remarkable content of Miss Keller's mind, her literary appreciation, and her phenomenal memory and mastery of English.

Forest Hills, L. I., N. Y.,
February 8, 1928.

Dear Dr. Tilney,

Since our conversation last Saturday with regard to the importance of odors and vibrations in my life, I have remembered that I went into it quite fully in *The World I Live In.* I asked Mrs. Henney to send you the book. You probably have it by now.

The sense of smell is the æsthetic sense, I think, even more than sight. I know that odors give me a vivid conception of my surroundings. I call smell my landscape because, when I walk or drive through the country, so many odors tell me of fields, streams, honey-sweet valleys, and hillsides covered with pines. If, as we are told, the ten thousand Greeks "shouted for joy when they saw the sea," I can imagine there must have been still more rejoicing when its bracing breath filled their nostrils.

HOW many memories, sad and bright, odors awaken in one's heart! Instantly a scent will carry one back through the years to a forgotten experience. A correspondent who had been with "The Princess Pat's Regiment" in France, told me that once, after his return to America, the scent of trodden grass caused him to faint, so forcibly had it brought to him the memory of being wounded, and lying with face downward on blood-soaked grass!

I am very sensitive to unpleasant odors. They have a depressing influence upon me; for they suggest all manner of dread things—disease, accidents, coming evil, and unhappy lives. Sometimes, when such an odor comes between me and a beloved object, a nervous tremor seizes me, and I find it difficult to control myself.

In my reading I have found that the Russians and the French are very sensitive to the odors which bring me delight and pain. Shakespeare, too, is full of references to the olfactory sense. A number of passages occur to me which I will note: In the scene where Hamlet stands by the grave of Ophelia, and holds out the jester's skull to Horatio, he asked in effect, "Did not Alexander, think you, look like this on earth?" Horatio replies, "Even so," and Hamlet asks, "And smelt so?"

IN *MACBETH,* after the murder of Duncan, Lady Macbeth, gazing on her soft white hands, cries, "Out, damned spot! Out, I say; . . . Here's the smell of blood still; all the perfumes of Arabia will not sweeten this little hand." The smell sensation, you see, is emphasized more than the sight of the blood-stain.

Juliet tells us

"that which we call a rose
Would by any other name smell as sweet."

Obviously, she is more impressed by the sweet smell of the rose than by its rich color or its exquisite petals.

When Juliet wonders what will become of her if she wakes in the tomb before Romeo comes, the odor sense is skillfully employed to darken the picture:

"Shall I not, then, be stifled in the vault,
To whose foul mouth no healthsome
air breathes in?"

"Is it not like, that I, . . . with loathsome smells
. . . shall be distraught?"

(I am quoting from memory.)

In *Twelfth Night* the Duke says of music,

"That strain again; it had a dying fall;

Oh, it came o'er my ear like the sweet
south
That breathes upon a bank of violets
Stealing and giving odor."

In these most poetic lines we have hearing and smell linked together æsthetically. The rich notes of the violin are associated in my mind with the emission of fragrance from dew-bathed southern roses in early June. I suppose the first poet called the scent of a flower its breath; but perhaps he did not realize as Bacon did that a breath is a sound. In his essay, "Of Gardens," he says, "The breath of flowers is far sweeter in the air—where it comes and goes like the warbling of music—than in the hand."

IN *CYMBELINE* Iachimo describes the sleeping Imogen, and declares:

" 'Tis her breathing
Perfumes the chamber thus."

In the summer time, when all the windows in my eerie study are wide open, the scents from the flowers and trees in the garden beat upon me in little delicately panting waves, and somehow this sensation is associated in my mind with the song of birds and the open sky.

I do not know of any passage in literature which so exquisitely interweaves all the senses as Shakespeare's "Sonnet XCIX." I will quote it because it illustrates how I interpret the sensations which come to others through the eye and the ear with smell.

"The forward violet thus did I chide,
Sweet thief, whence did't thou steal
thy sweet that smells,
If not from my love's breath, The
purple pride
Which on thy soft cheek for complexion dwells?
In my love's veins thou hast too grossly
dyed.
The lily I condemned for thy hand,
And buds of marjoram had stolen thy
hair;
The roses fearfully on thorns did stand,
One blushing shame, another white despair,
A third, not red nor white, had stolen
of both,
And to his robbery had annex'd thy
breath;
But for this theft, in pride of all his
growth,
A vengeful canker eat him up to death.
More flowers I noted, yet I none could
see,
But sweet or color it had stolen from
thee."

You see why I stress the importance of the sense of smell. I associate it with poignant memories, deep emotions, and the glories of poetry.

I recall a description I once read in French—unfortunately, I cannot remember the author's name—of a man who stood on the seashore with the wind blowing in his face, full of heart-stirring odors. He threw up his arms ecstatically, taking in great "mouthfuls of air," as the French idiom so vividly expresses it, while his heart overflowed with tender memories. The scents from land and ocean brought back to him the loved hearth of his boyhood where he had gazed into the fire, seeing magical pictures, the kisses of his mother, the fine, virile personality of his father, the orchard where he had played, and the summer nights when he wandered under the stars with great thoughts in his brain. Throughout the passage it is the sensation of smell, not sight or hearing, which awakens the deepest emotions.

I WONDER how many people are aware of the complex odors in a house that has been lived in a long time. They give me a comfortable sense of hospitality. They suggest cheery winter fires and peace and sweet family intimacies. There are lingering scents of perfume and garments in closets and drawers, and appetizing odors of cookery, which some people find extremely unpleasant, but which seem to me kindly.

Balzac attached much meaning to the smells that came to him while he worked in his attic. He was sensitive to the odor of brown gravy and the exhalations from the city streets. He read much of charm, and of ugliness, too, into the smell of garments and the cosmetics people used.

Pierre Loti noticed the odor of the crisp winter air in his mother's cloak when she came into the room where he lay ill, and bent over him, rosy-cheeked and drenched in sunshine.

I WAS much interested in an article by Stuart Mackenzie in *The American Magazine* entitled "Smells Are Surer Than Sounds and Sights." He notes among other things that plants emit many odors besides the perfume of their blossoms. Sometimes the scents are in the wood itself, as in cedar and sandalwood, sometimes in the bark, as in cinnamon and cassia, or in the leaves, as in pines, bay, mint, thyme, and lemon verbena. Others are in the fruits—orange, lemon, and nutmeg. He has observed smells also in the seeds—almond and caraway, and I would add magnolia seeds, and sometimes certain secretions are fragrant, like turpentine, and even roots have a strong odor, like the orris root. All this knowledge helps me to get joy out of life.

Mr. Mackenzie also says that he felt keenly his inferiority in the olfactory sense when he lived among some Western Indians. They could detect a distant camp fire when he could not possibly perceive it. This makes me feel my kinship to the Indians; for I, also, can smell at a great distance.

Some day, when I have leisure, I will write you more on this fascinating subject. The Bible is crammed full of odor references. The patriarchal services had in them much of incense and sweet oil. If the elders who stand around the Throne of God hold in one hand golden harps, they hold in the other "golden vials full of odors which are the prayers of saints."

Sincerely and interestedly yours,

Helen Keller.

And yet, when tested objectively, Miss Keller's olfactory sense shows nothing above the normal average. Seven aromatic substances were used in these tests, including alcohol, oil of wintergreen, peppermint, formaldehyde, eucalyptus, asafetida, and valerian. It may be said that the fundamental pathway for the sense of smell in Miss Keller has absolutely no advantage over that of the normal adult individual. The sense of taste similarly showed no advantage in its fundamental organization. Concerning the sense of sight it may be said in summary that Miss Keller is totally blind and has been in that condition since her nineteenth month. She has neither light nor object perception. Examination reveals the fact that there is no retina present, and she is therefore deprived of the primary conduction paths for visual sense. With reference to the special sense of hearing, Miss Keller is completely deaf, having neither bone nor air conduction in either ear. Concerning her bone conduction, some question might arise, inasmuch as she is conscious of vibratory impression. This, however, is in all probability not due to her auditory sense, but rather to an extraordinary development of her vibratory sensibility.

THE case of Helen Keller demonstrates what the brain may do under the influence of concentrated attention. It shows the expansions, experience, understanding, and knowledge which may result from such demands made upon the brain. The question naturally arises, Is it possible for the brain of modern man to respond to such demands? The answer must be in the affirmative. The great difficulties in the case arise not from the brain's potential powers to respond, but from man's great ineptitude to make the necessary demands for such further development. Personally, I am intensely pessimistic that the ascendant elements in the human race to-day will ever develop to any high degree. Indeed, I am not at all sure that mentally the human race is not retrograding.

Viewing modern man in the broad

sense, as all that part of the race which has existed during the historic period, it would seem in many respects that our mental capacities are definitely inferior to those of the Greeks, probably to those of the Romans, and it may be even to those of the Egyptians. So in the historic period, if any statement seems justified at all it is that intellectually the human race has stood still—perhaps, a pessimist will say, has gone backward.

NOR does there appear to be any great promise that the essential physiological processes which guarantee further development of the brain will ever have their direction. The day we live in is characterized by the spirit of haste. Most of our ideals are tinged by the standards of speed—get rich quick, get wise quick, get strong quick, get great quick. And by that very fact insufficient time is allowed for that patience, that concentration, and that sustained attention which are the physiological substrata upon which the further structural development of the human brain depends.

We find ourselves to-day in the midst of many and growing distractions. We find ourselves resistive to new ideas, in the thrall of ancient superstitions and delusions, willing to yield ourselves to the expediency of the easiest way in solving our problems. The effort of thinking is restricted to the very few. Thought is not always along the right lines to begin with; and often, when it starts out right, it soon becomes perverted. There seems to be no effort to break through the old formulas or to overcome those ancient repetitious cycles of disaster which lead from one war to the next, from one revolution to another, which involve us in frustrations in our civic efforts and leave us little, if any, better off morally or intellectually than our predecessors in the early days of history.

And yet one need not in the main leave this subject in pessimistic depression or discouragement. The development of the brain, like all other development, has followed the usual laws of evolution. In the past half-century a striking new element has entered the evolutionary process. This has never operated before, and the presence of it as a new element may have far-reaching effects, especially in the evolution of the human race. This new element which has never existed before consists in the fact that intelligent men and women have recognized that there is such a thing as evolution. Having become conscious of a fact for the first time, they may and will increasingly direct their attention to its processes, its progress, and its underlying causes. What discoveries may be brought to light in consequence of these efforts cannot be foretold; but it is wholly within the realm of the possible that much will be revealed to increase our understanding and method of improving ourselves.

Another most encouraging influence is the history of the development of man's brain. In my studies of the prehistoric brain and the psychological foundations of human progress I have been forced to the conclusion that, beginning perhaps a million years ago with Pithecanthropus and coming to modern man, the brain has shown a progressive development. From this fact there is every reason to believe that the brain of man to-day may, and probably does, represent only some intermediate stage in the ultimate development of the master organ of life.

WE OURSELVES are certainly not the race of progress unless we take much and serious thought of our present delinquencies and defects. As a race we possess a brain which has only developed a fraction of its potential power, say one-fifth or less. This statement may be verified in many ways, and I have attempted to show some of the important evidence bearing upon this conclusion. The greatest problem of humanity is how to make the best use of the brain. This is a problem which must be solved by the master science, the ultimate knowledge of all of the mechanism entering into the development of human behavior.

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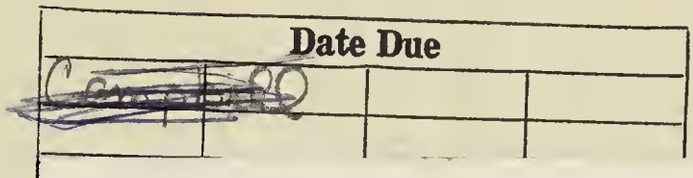

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